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### Section III

## RIGGING 20-MILLIMETER AMMUNITION

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### 15-33. Description of Load

Two hundred forty boxes of 20-millimeter ammunition are rigged for low-velocity airdrop on a 16-foot, type V platform. All 20-millimeter ammunition packaged as shown and listed in FM 10-500-53/MCRP No 4-3.8/TO 13C7-18-41, as certified for low-velocity airdrop, may be rigged using these procedures. This load uses five G-11C cargo parachutes.

### 15-34. Preparing Platform

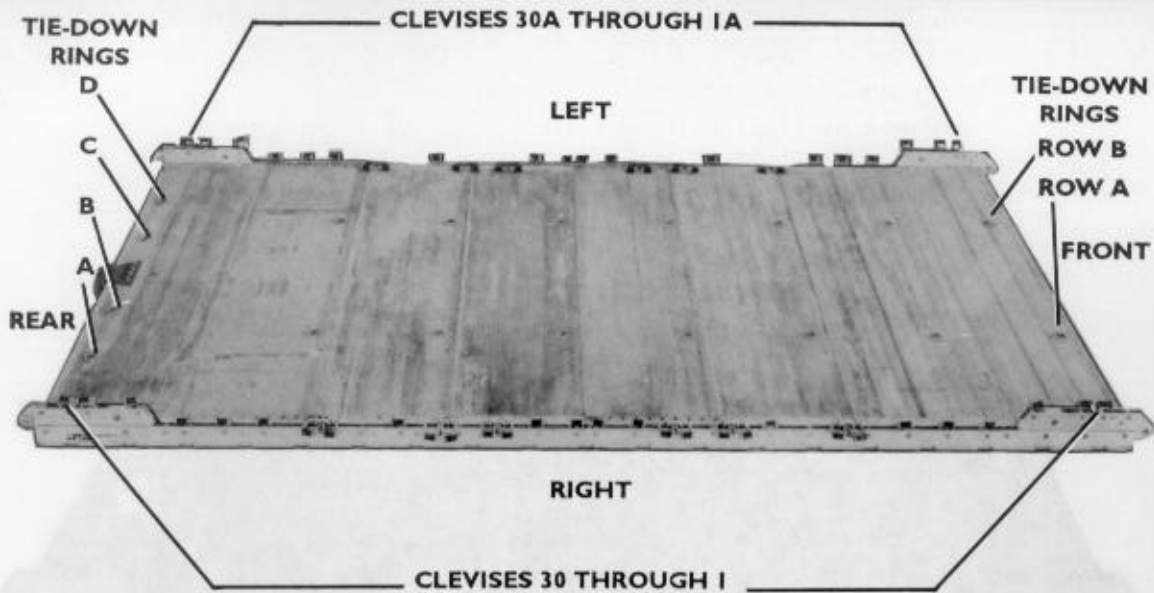
Prepare a 16-foot, type V airdrop platform as given below:

**a. *Inspecting Platform.*** Inspect, or assemble and inspect, the platform according to TM 10-1670-268-20&P/TO 13C7-52-22.

**b. *Installing Tandem Links.*** Install four tandem links as shown in Figure 15-26.

**c. *Attaching and Numbering Clevises.*** Attach and number 72 clevis assemblies as shown in Figure 15-26.

**NOTES:** 1. The nose bumper may or may not be installed.  
2. Measurements given in this chapter are from the front edge of the platform, NOT from the front edge of the nose bumper.

**Step:**

1. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
2. Install a tandem link on the rear of each platform side rail using holes 30, 31, and 32.
3. Install clevises on bushings 2, 3, and 4 of each front tandem link.
4. Install clevises on bushings 1, 2, and 3 of each rear tandem link.
5. Starting at the front of each platform side rail, install clevises on each platform side rail using the bushings bolted on holes 5, 6, 7, 9, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22, 24, 26, 27, and 28. Reverse the clevises on holes 9, 12, 14, 19, 21 and 24. Install two clevises on each of the reversed clevises.
6. Starting at the front of the platform, number the clevises bolted to the right side from 1 through 30, and those bolted to the left side from 1A through 30A.
7. Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 15-26. Platform prepared

### 15-35. Building Honeycomb Stacks and Placing First Stack

Build the honeycomb stack for the first stack of ammunition and place it on the platform as shown in Figure 15-27. Build a second stack as shown in Figure 15-27 and set it aside.

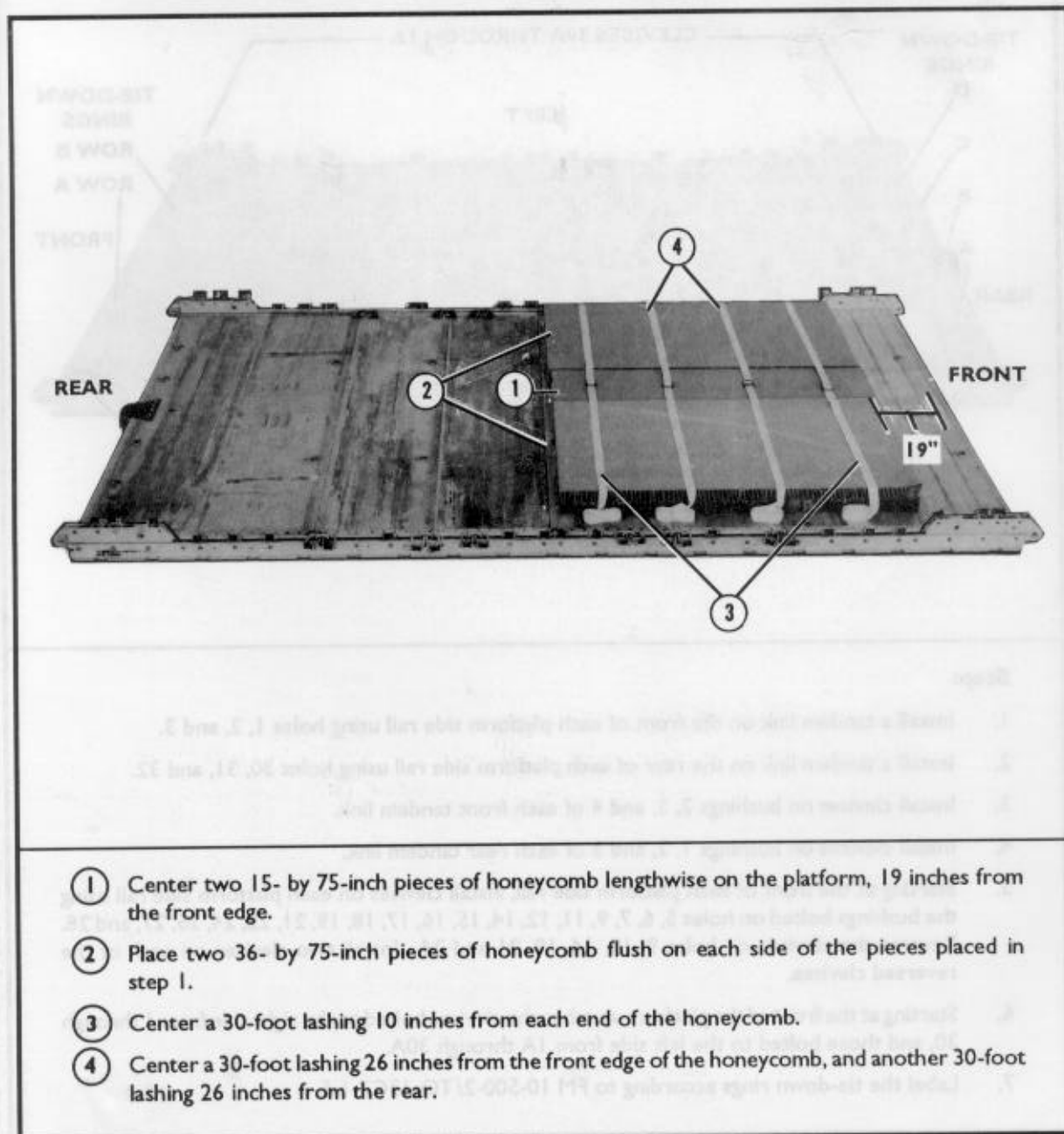
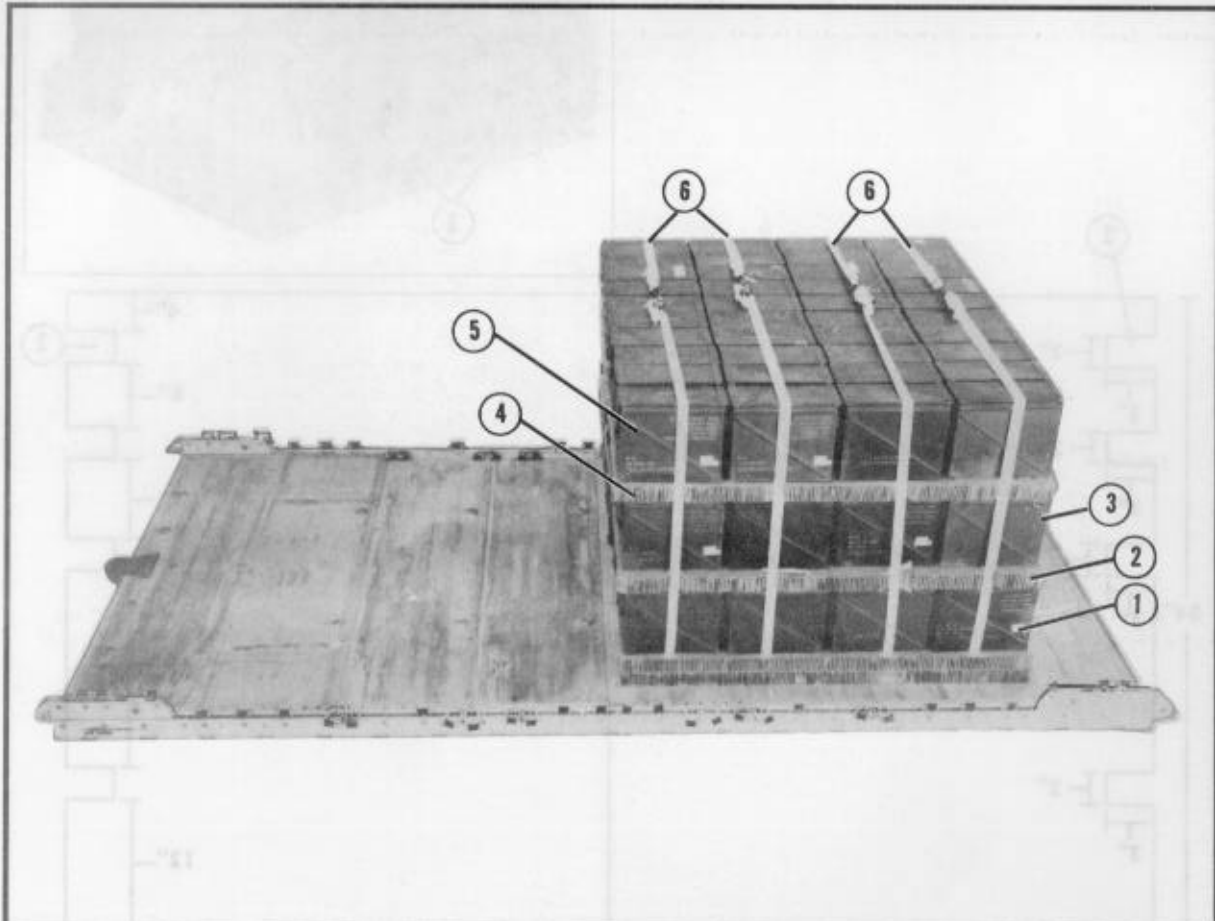


Figure 15-27. Honeycomb for first ammunition stack prepared and placed

### 15-36. Positioning and Securing First Ammunition Stack

Set 120 boxes of 20-millimeter ammunition on the honeycomb and pre-position lashing. Secure the lashings as shown in Figure 15-28.



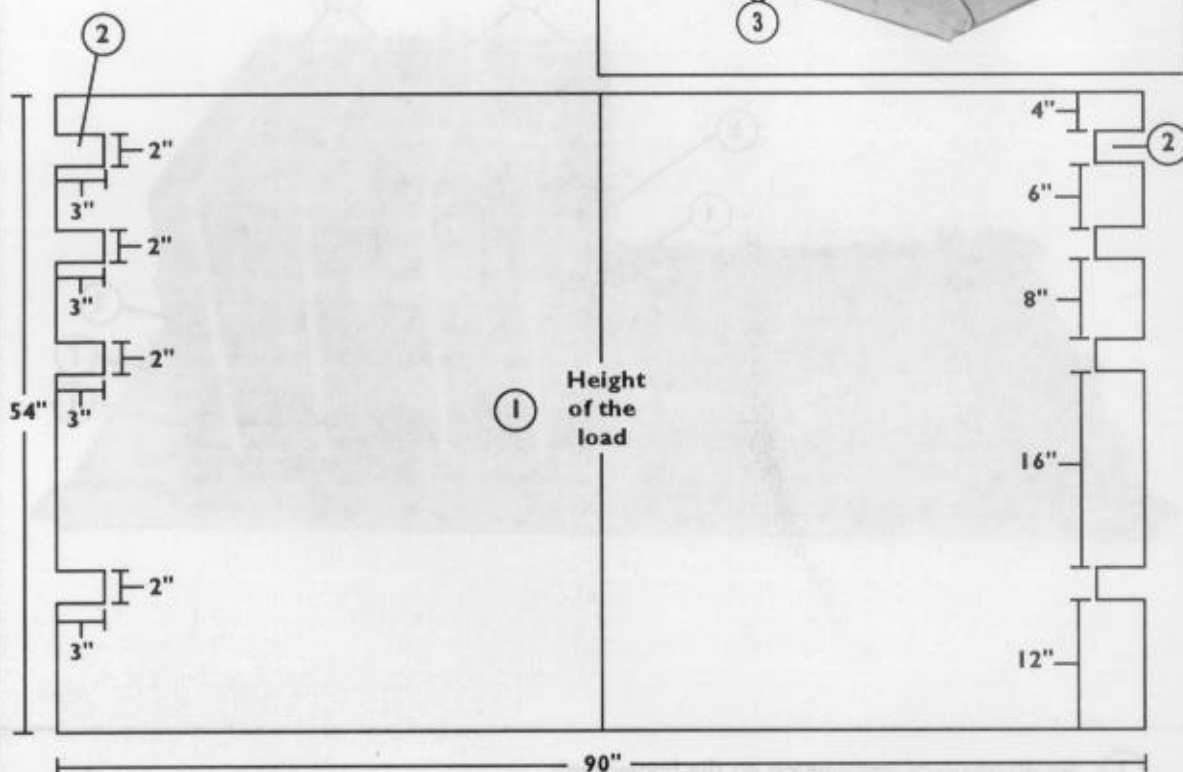
- ① Set 40 boxes of ammunition on the honeycomb.
- ② Place one layer of honeycomb cut to the dimensions in Figure 15-27, steps 1 and 2, over the boxes.
- ③ Place 40 boxes of ammunition over the honeycomb placed in step 2.
- ④ Place a layer of honeycomb over the second layer of boxes.
- ⑤ Place the third layer of boxes over the honeycomb placed in step 4.
- ⑥ Secure each of the pre-positioned lashings in Figure 15-27, steps 3 and 4, on top of the boxes with two D-rings and a load binder.

Figure 15-28. First ammunition stack placed and secured

### 15-37. Constructing Endboards

Construct four endboards as shown in Figure 15-29.

**Note:** This drawing is not drawn to scale.



- ① Cut two 3/4- by 48- by 90-inch and two 3/4- by 6- by 90-inch pieces of plywood. Nail the four pieces flush together so that a single piece of 1 1/2- by 56- by 90 inches results.

**Note:** On the endboard shown, the 6-inch piece is at the bottom. On the other side of the endboard shown, the 6-inch piece is at the top.

- Make 2- by 3-inch cutouts as shown. Pad all cutouts with cellulose wadding and tape.
- Place an endboard against the front of the boxes and place one against the rear. Tie them in place with a length of type III nylon cord.

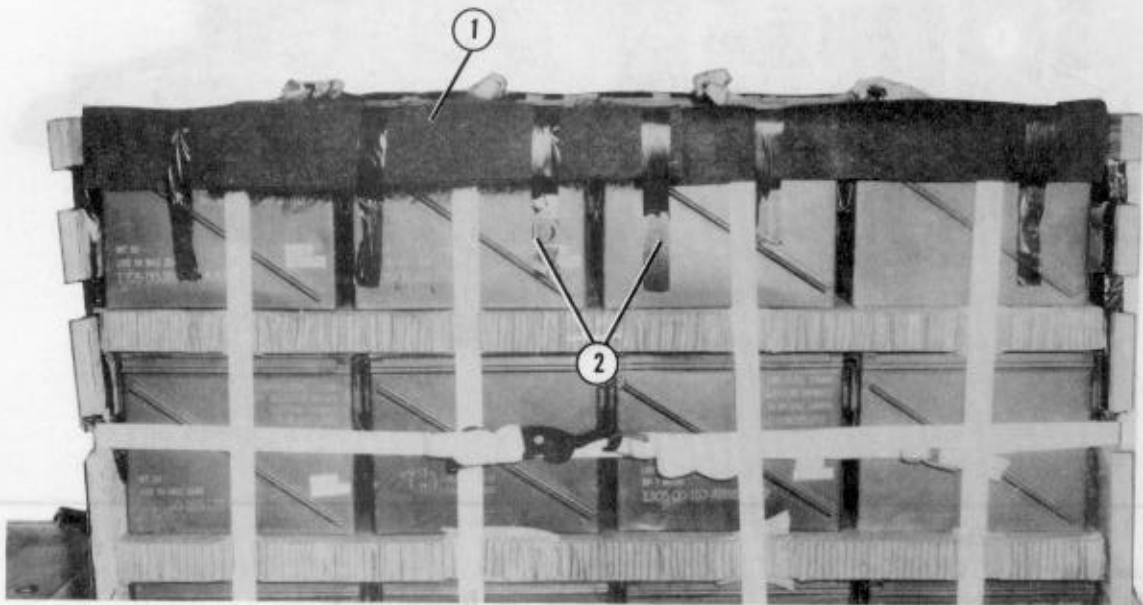
Figure 15-29. Endboards for 20-millimeter ammunition constructed and placed

### 15-38. Lashing First Ammunition Stack and First and Second Endboards

Cover the left and right upper edges of the stack of boxes with felt as shown in Figure 15-30. Lash the first and second endboards and the first ammunition stack to the platform as shown in Figure 15-31.

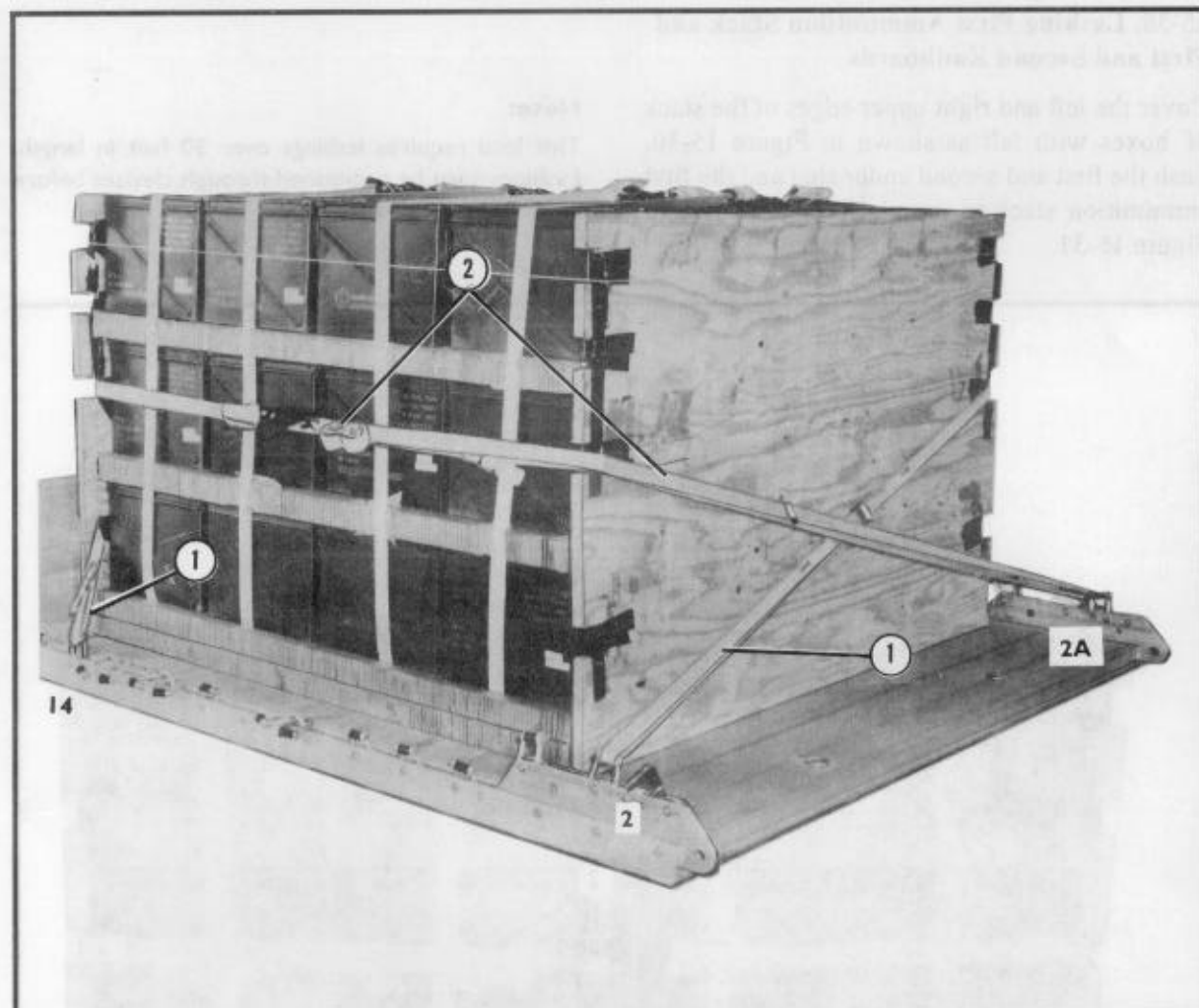
#### Note:

This load requires lashings over 30 feet in length. Lashings must be positioned through clevises before sections are joined together.



- ① Center a piece of felt, 75 inches long, over the left and right upper corners of the stack of boxes.
- ② Tape the felt in place.

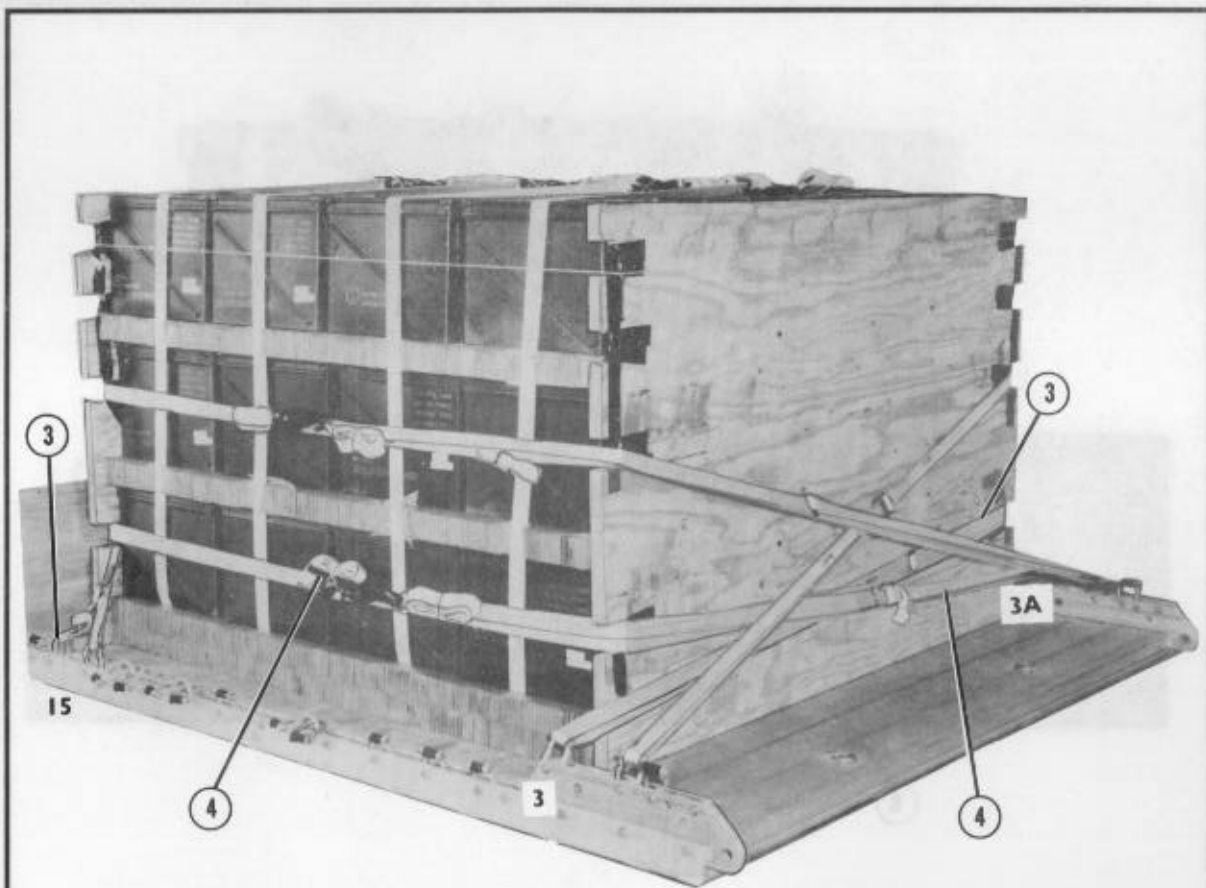
Figure 15-30. Boxes padded with felt



Lashing Number	Tie-Down Clevis Number	Instructions
1	2 and 14	Pass a 60-foot lashing through clevis 2, through the third cutout from the top in the left side of the first endboard, and around the left side of the ammunition stack. Pass the lashing through the third cutout from the top in the left side of the second endboard and through clevis 14. Secure the lashing on the left side.
2	2A and 14A	Pass a 60-foot lashing through clevis 2A, through the third cutout from the top in the right side of the first endboard, and around the right side of the ammunition stack. Pass the lashing through the third cutout from the top in the right side of the second endboard and through clevis 14A. Secure the lashing on the right side.

Figure 15-31. First ammunition stack and endboards lashed to platform

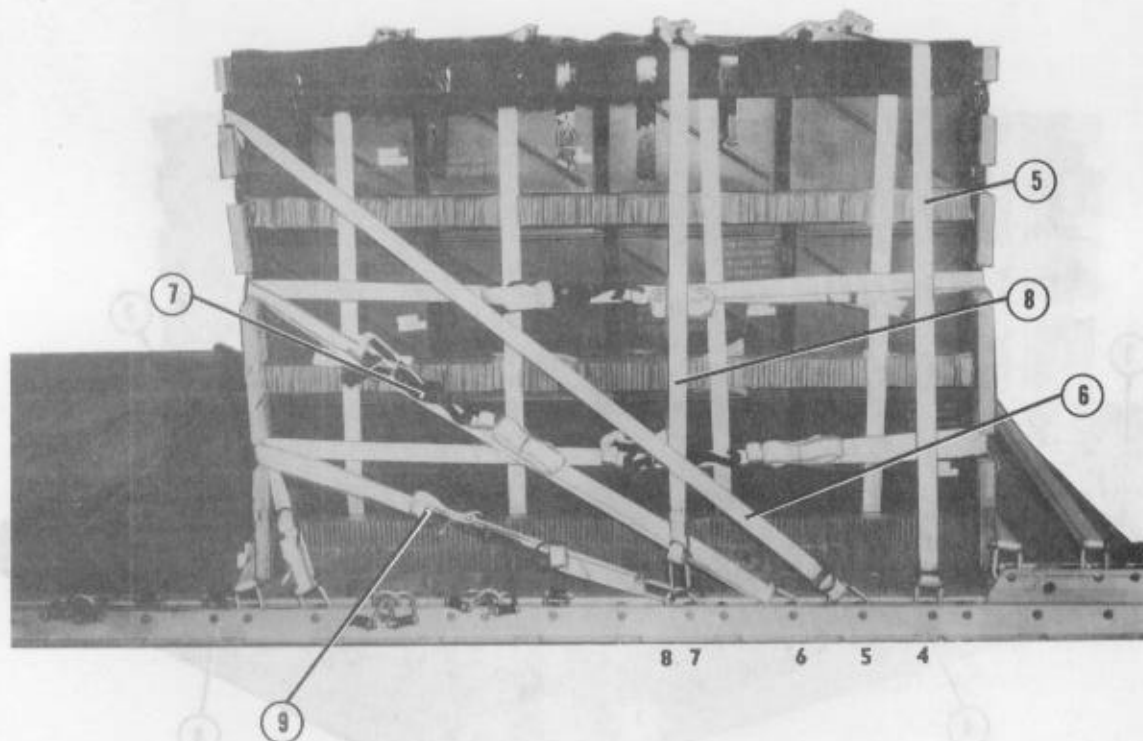




Lashing Number	Tie-Down Clevis Number	Instructions
3	3 and 15	Pass a 60-foot lashing through clevis 3, through the bottom cutout in the left side of the first endboard, and around the left side of the ammunition stack. Pass the lashing through the bottom cutout in the left side of the second endboard, and through clevis 15. Secure the lashing on the left side.
4	3A and 15A	Pass a 60-foot lashing through clevis 3A and through the bottom cutout in the right side of the first endboard, and around the right side of the ammunition stack. Pass the lashing through the bottom cutout in the right side of the second endboard, and through clevis 15A. Secure the lashing on the right side.

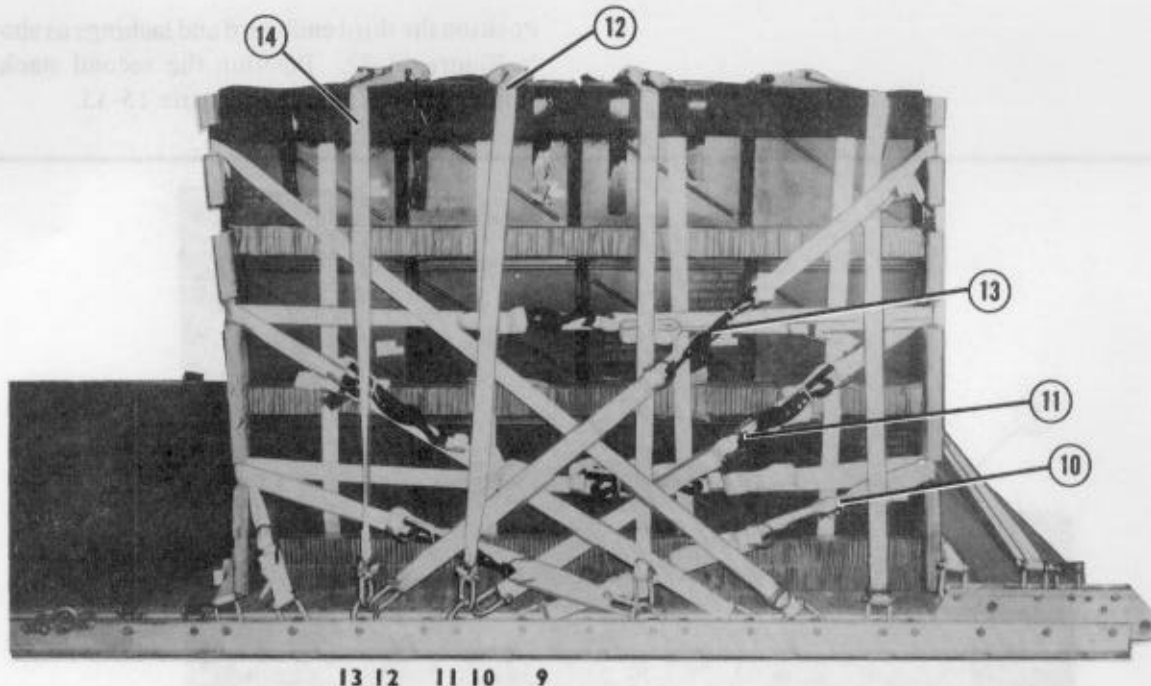
Figure 15-31. First ammunition stack and endboards lashed to platform (continued)





Lashing Number	Tie-Down Clevis Number	Instructions
5	4 and 4A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top of the boxes.
6	5 and 5A	Pass a 45-foot lashing through both clevises and through the top cutouts in the second endboard. Secure the lashing on the side of the load.
7	6 and 6A	Pass a 45-foot lashing through both clevises and through the third cutouts from the top in the second endboard. Secure the lashing on the side of the load.
8	7 and 7A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top of the boxes.
9	8 and 8A	Pass a 30-foot lashing through both clevises and through the bottom cutouts in the second endboard. Secure the lashing on the side of the load.

Figure 15-31. First ammunition stack and endboards lashed to platform (continued)

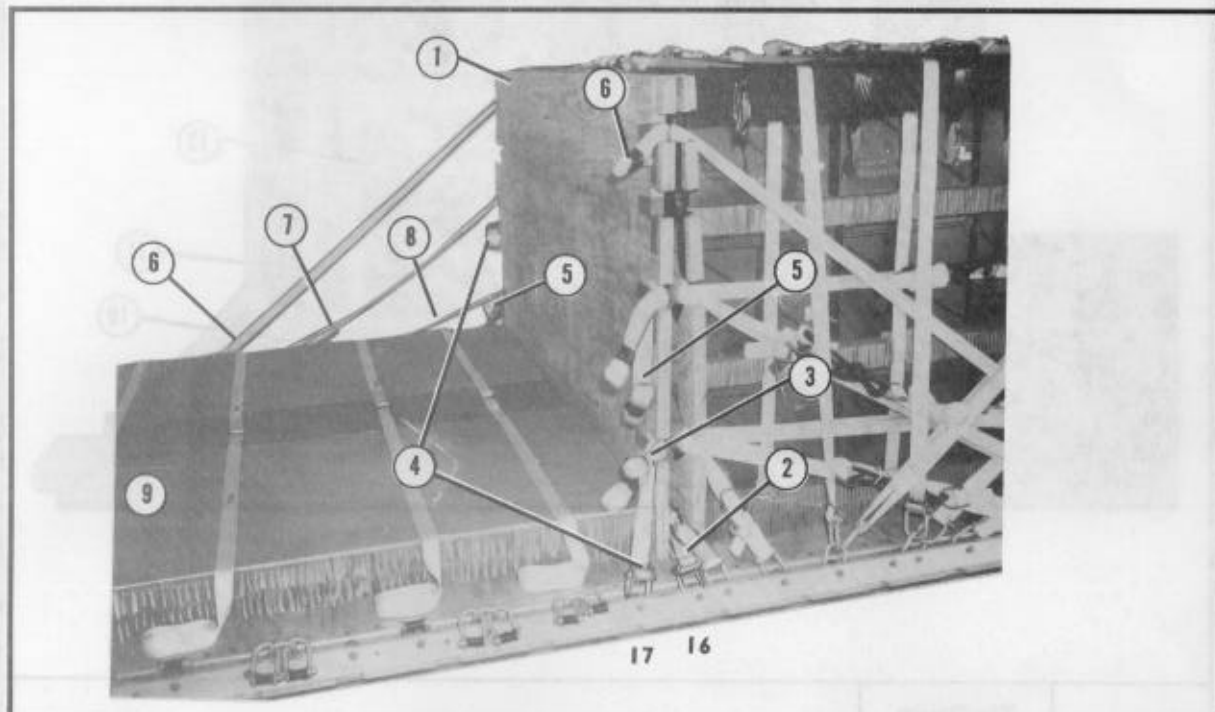


Lashing Number	Tie-Down Clevis Number	Instructions
10	9 and 9A	Pass a 30-foot lashing through both clevises and through the bottom cutouts in the first endboard. Secure the lashing on the side of the load.
11	10 and 10A	Pass a 45-foot lashing through both clevises and through the third cutout from the top in the first endboard. Secure the lashing on the side of the load.
12	11 and 11A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top of the boxes.
13	12 and 12A	Pass a 45-foot lashing through both clevises and through the top cutout in the first endboard. Secure the lashing on the side of the load.
14	13 and 13A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top of the boxes.

Figure 15-31. First ammunition stack and endboards lashed to platform (continued)

### 15-39. Positioning Endboard, Placing Second Ammunition Stack, and Pre-positioning Lashings

Position the third endboard and lashings as shown in Figure 15-32. Position the second stack of ammunition as shown in Figure 15-33.

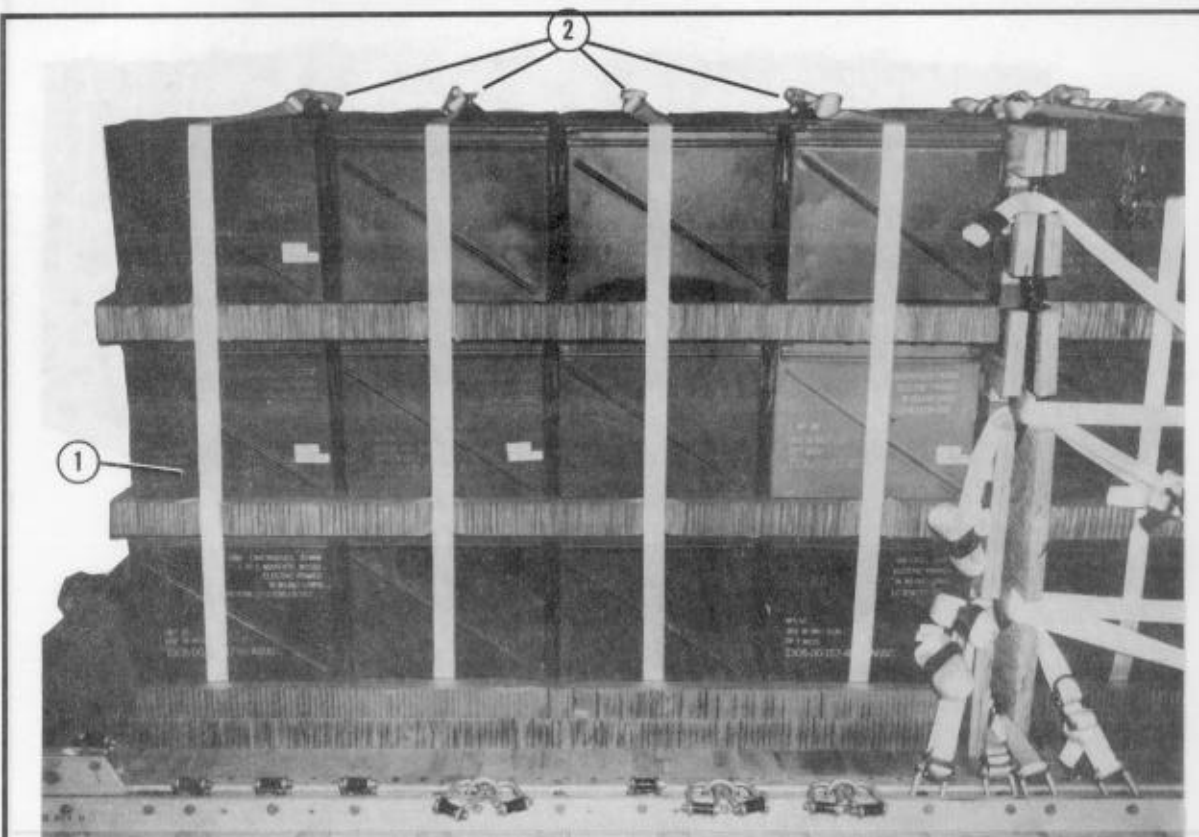


- ① Set the third endboard against the rear of the load.
- ② Pass a 60-foot lashing through clevis 16 and through the bottom left cutout in the third endboard. Roll and tape the ends.
- ③ Pass a 60-foot lashing through clevis 16A and through the bottom right cutout in the third endboard. Roll and tape the ends.
- ④ Pass a 60-foot lashing through clevis 17, through the bottom right cutout, and the third cutout from the top in the left side of the third endboard. Roll and tape the ends.
- ⑤ Pass a 60-foot lashing through clevis 17A, through the bottom left cutout, and the third cutout from the top in the right side of the third endboard. Roll and tape the ends.
- ⑥ Pass a 45-foot lashing through clevis 26A and through both top cutouts in the third endboard. Roll and tape the ends.
- ⑦ Pass a 45-foot lashing through clevis 25A and through the third cutout from the top on both sides of the third endboard. Roll and tape the ends.

Figure 15-32. Pre-positioning lashings on third endboard

- ⑧ Pass a 30-foot lashing through clevis 23A and through both bottom cutouts in the third endboard. Roll and tape the ends.
- ⑨ Position the second honeycomb stack 17 inches from the rear edge of the platform. Pre-position four 30-foot lashings on the honeycomb as shown in Figure 15-27, steps 3 and 4.

*Figure 15-32. Pre-positioning lashings on third endboard (continued)*

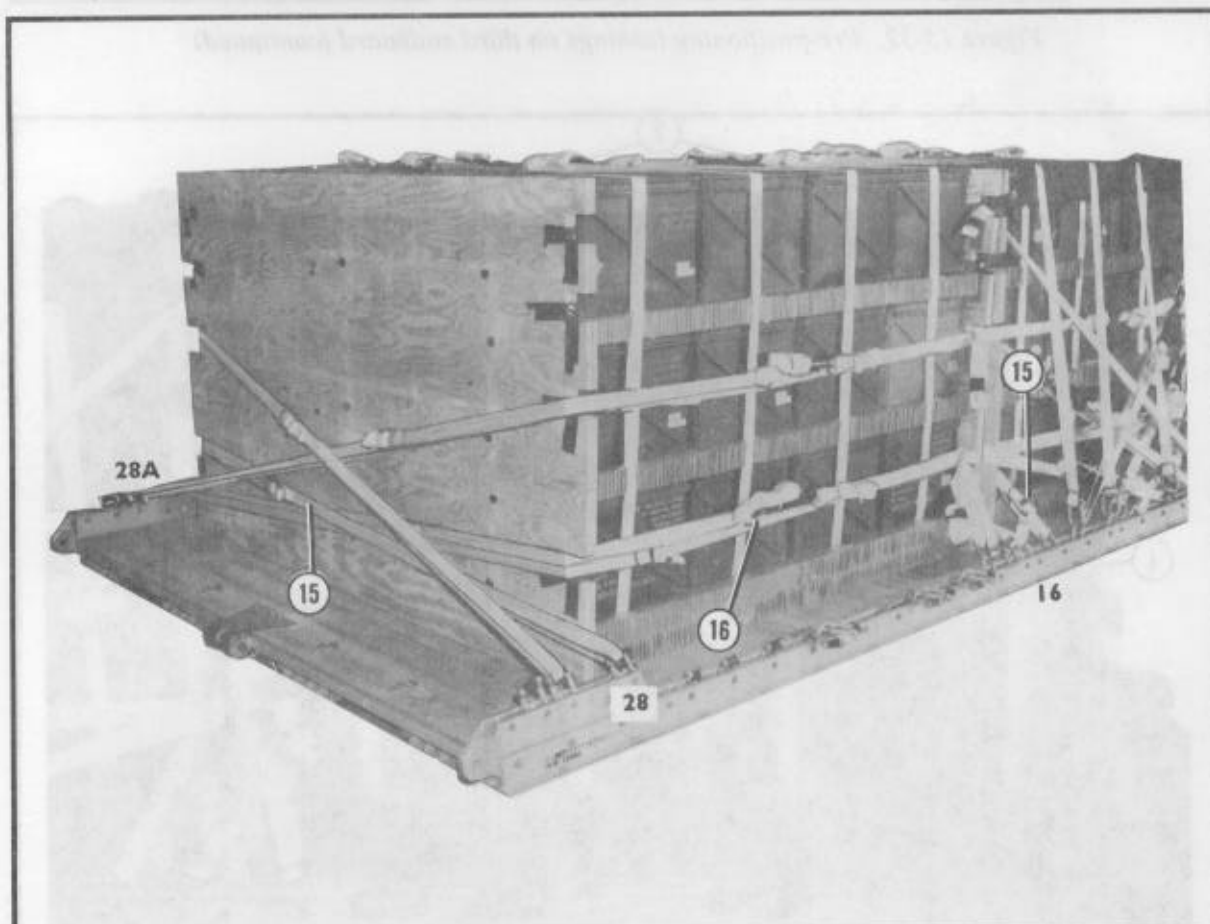


- ① Stow 120 boxes of ammunition on the honeycomb as shown in Figure 15-28.
- ② Secure each of the pre-positioned lashings on top of the boxes with two D-rings and a load binder.
- ③ Pad the left and right upper edges of the boxes with felt as shown in Figure 15-30 (not shown).
- ④ Place the fourth endboard against the rear of the load. Safety tie it to convenient points for temporary support (not shown).

*Figure 15-33. Second stack of ammunition positioned*

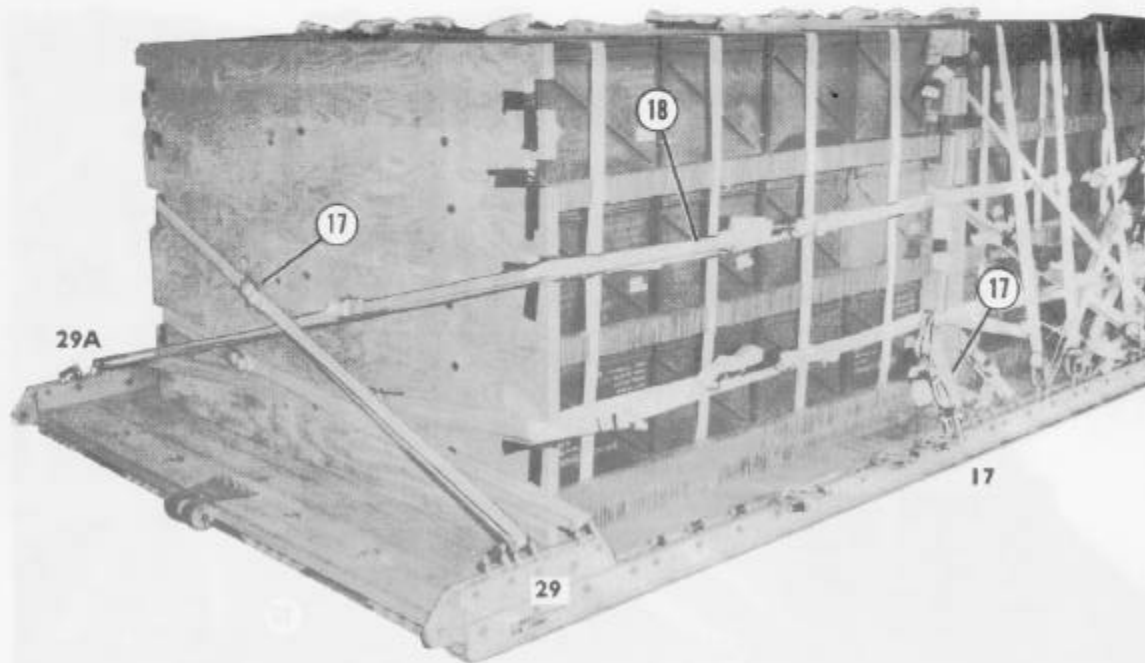
#### 15-40. Lashing Second Ammunition Stack and Third and Fourth Endboards

Lash the third and fourth endboards and the second ammunition stack to the platform as shown in Figure 15-34.



Lashing Number	Tie-Down Clevis Number	Instructions
15	16 and 28	Pass the pre-positioned lashing in Figure 15-32, step 2, around the left side of the boxes, through the bottom left cutout in the fourth endboard and through clevis 28. Secure the lashing on the left side.
16	16A and 28A	Pass the pre-positioned lashing in Figure 15-32, step 3, around the right side of the boxes, through the bottom right cutout in the fourth endboard and through clevis 28A. Secure the lashing on the right side.

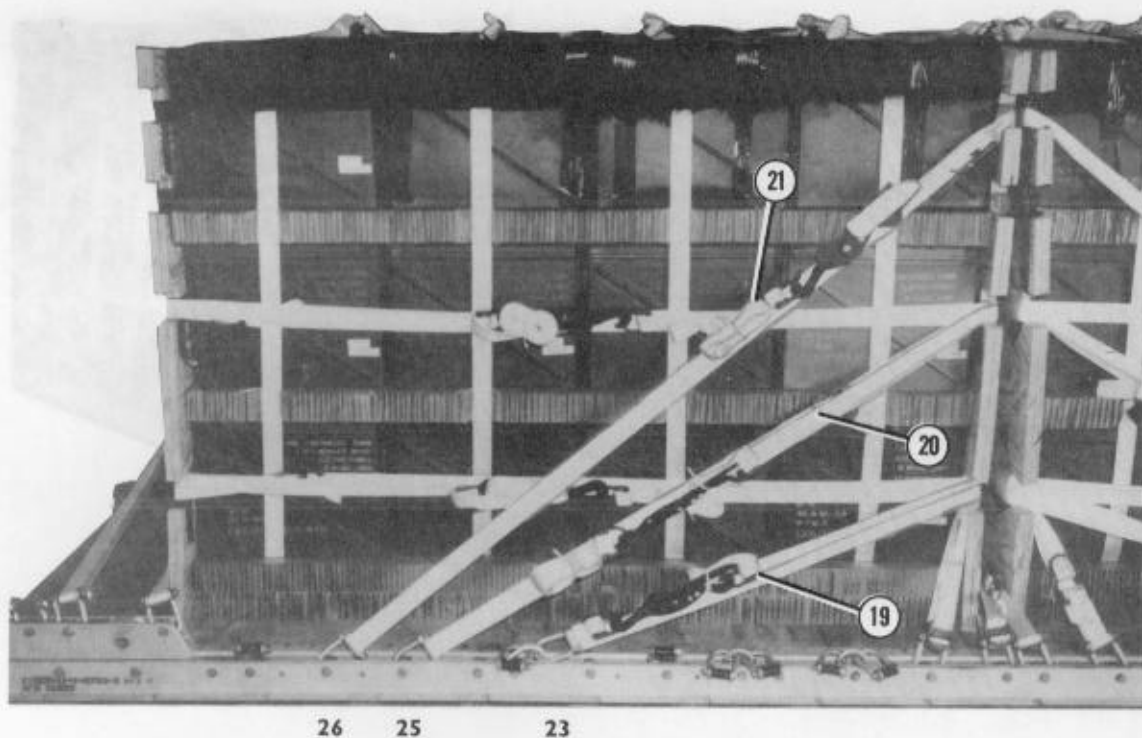
Figure 15-34. Second ammunition stack and endboards lashed to platform



Lashing Number	Tie-Down Clevis Number	Instructions
17	17 and 29	Pass the pre-positioned lashing in Figure 15-32, step 4, around the left side of the boxes, through the third cutout from the top in the left side of the fourth endboard and through clevis 29. Secure the lashing on the left side.
18	17A and 29A	Pass the pre-positioned lashing in Figure 15-32, step 5, around the right side of the boxes, through the third cutout from the top in the right side of the fourth endboard and through clevis 29A. Secure the lashing on the right side.

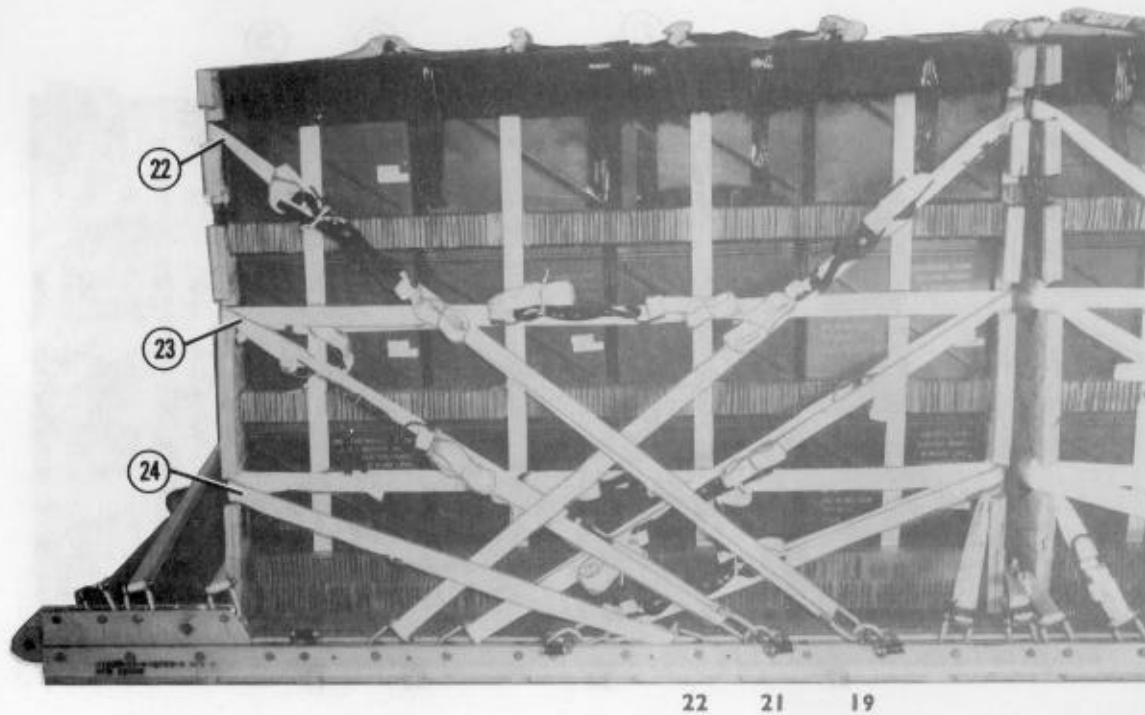
Figure 15-34. Second ammunition stack and endboards lashed to platform (continued)





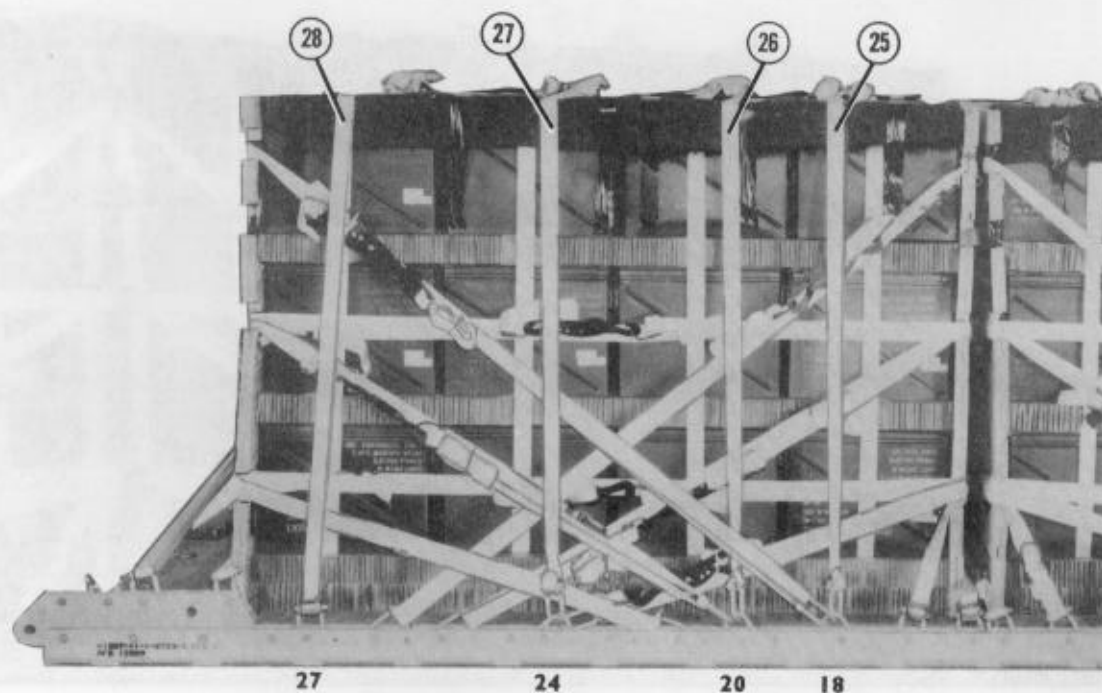
Lashing Number	Tie-Down Clevis Number	Instructions
19	23 and 23A	Pass the pre-positioned lashing in Figure 15-32, step 8 through clevis 23. Secure the lashing on the right side.
20	25 and 25A	Pass the pre-positioned lashing in Figure 15-32, step 7 through clevis 25. Secure the lashing on the right side.
21	26 and 26A	Pass the pre-positioned lashing in Figure 15-32, step 6 through clevis 26. Secure the lashing on the right side.

Figure 15-34. Second ammunition stack and endboards lashed to platform (continued)



Lashing Number	Tie-Down Clevis Number	Instructions
22	19 and 19A	Pass a 45-foot lashing through both clevises and through the top cutouts in the fourth endboard. Secure the lashing on the side.
23	21 and 21A	Pass a 45-foot lashing through both clevises and through the third cutouts from the top in the fourth endboard. Secure the lashing on the side.
24	22 and 22A	Pass a 30-foot lashing through both clevises and through the bottom cutouts in the fourth endboard. Secure the lashing on the side.

Figure 15-34. Second ammunition stack and endboards lashed to platform (continued)



Lashing Number	Tie-Down Clevis Number	Instructions
25	18 and 18A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top.
26	20 and 20A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top.
27	24 and 24A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top.
28	27 and 27A	Pass a 15-foot lashing through each clevis and through its own D-ring. Secure the lashings on top.

Figure 15-34. Second ammunition stack and endboards lashed to platform (continued)

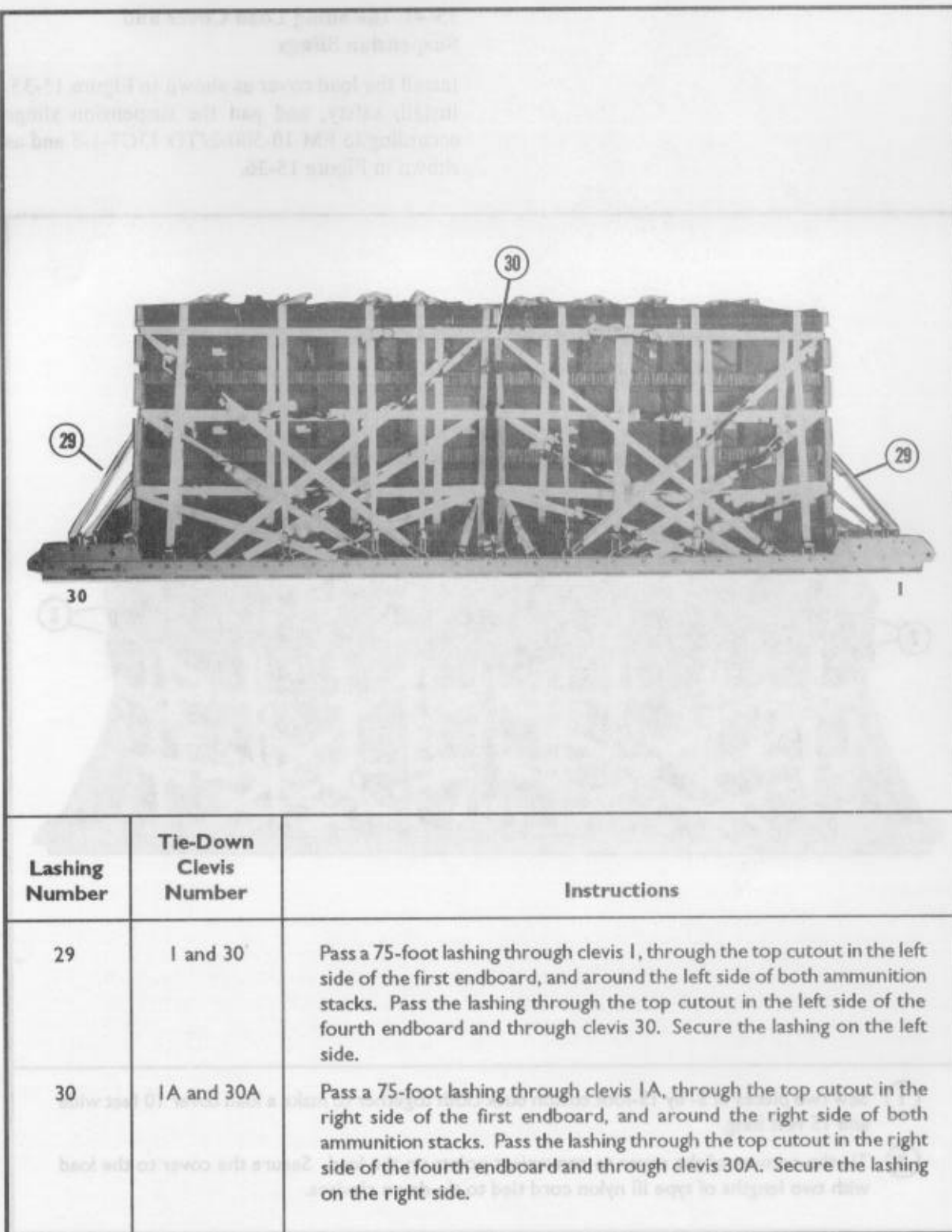


Figure 15-34. Second ammunition stack and endboards lashed to platform (continued)

### 15-41. Installing Load Cover and Suspension Slings

Install the load cover as shown in Figure 15-35. Install, safety, and pad the suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 15-36.

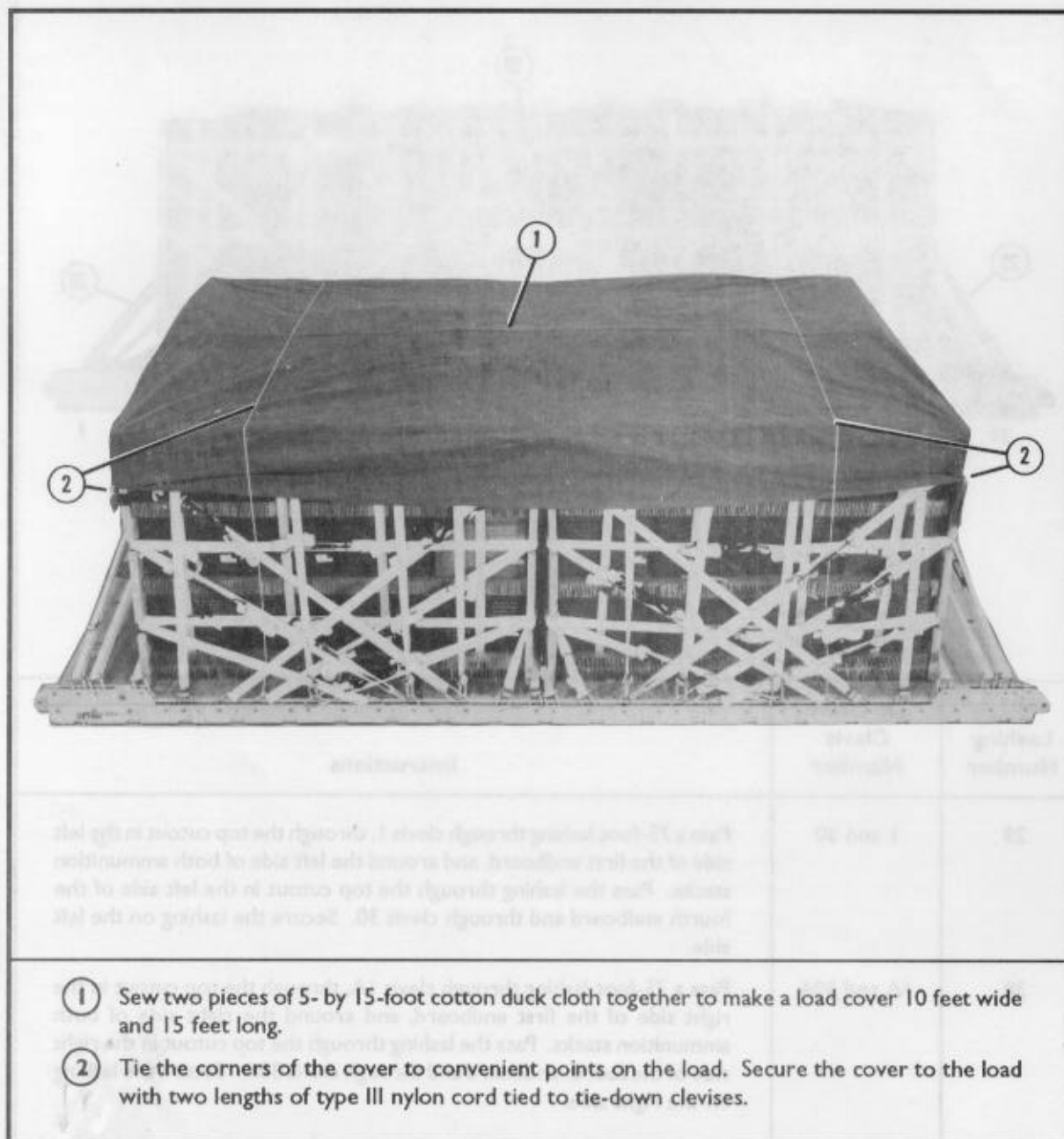
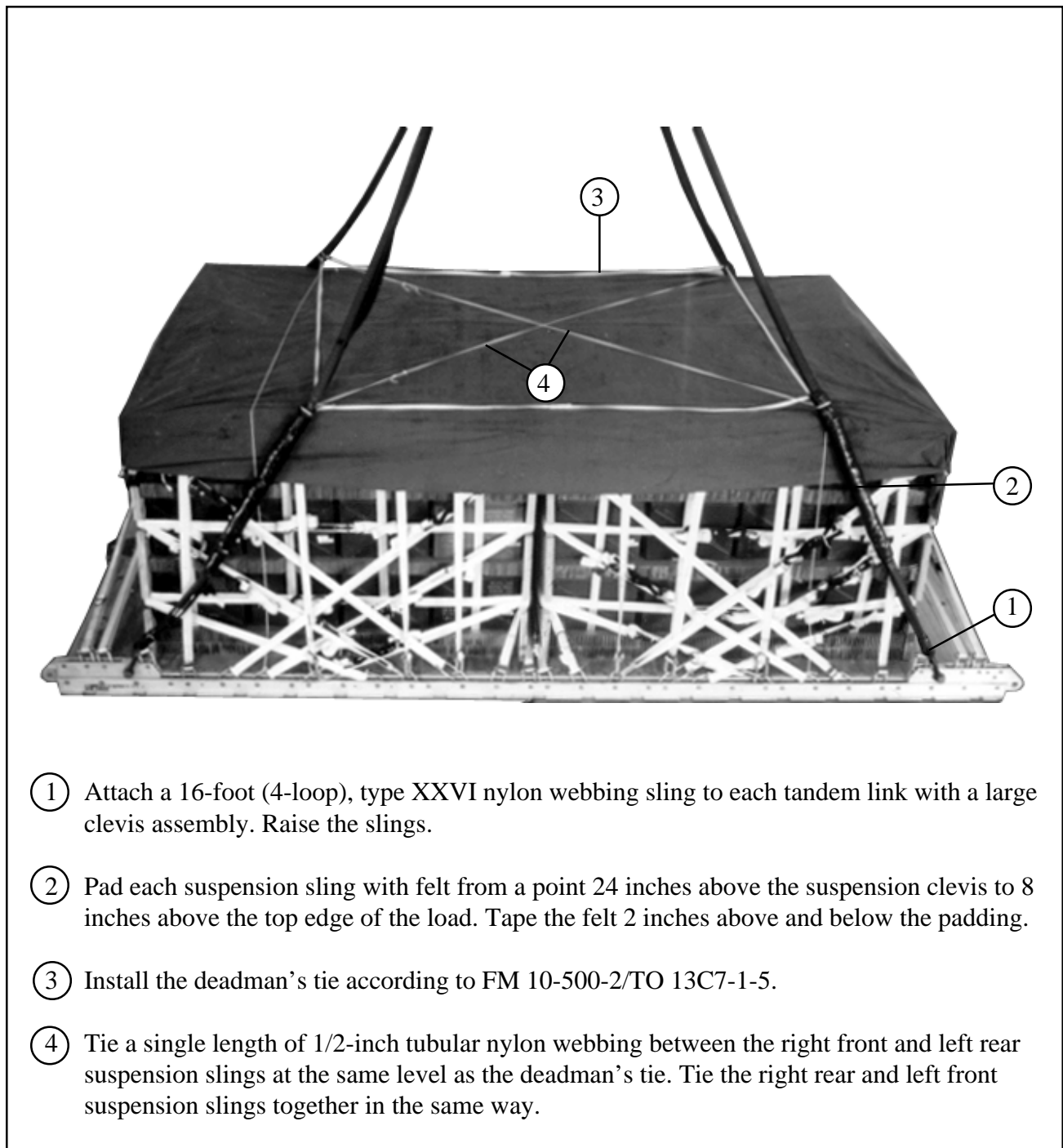


Figure 15-35. Load cover installed

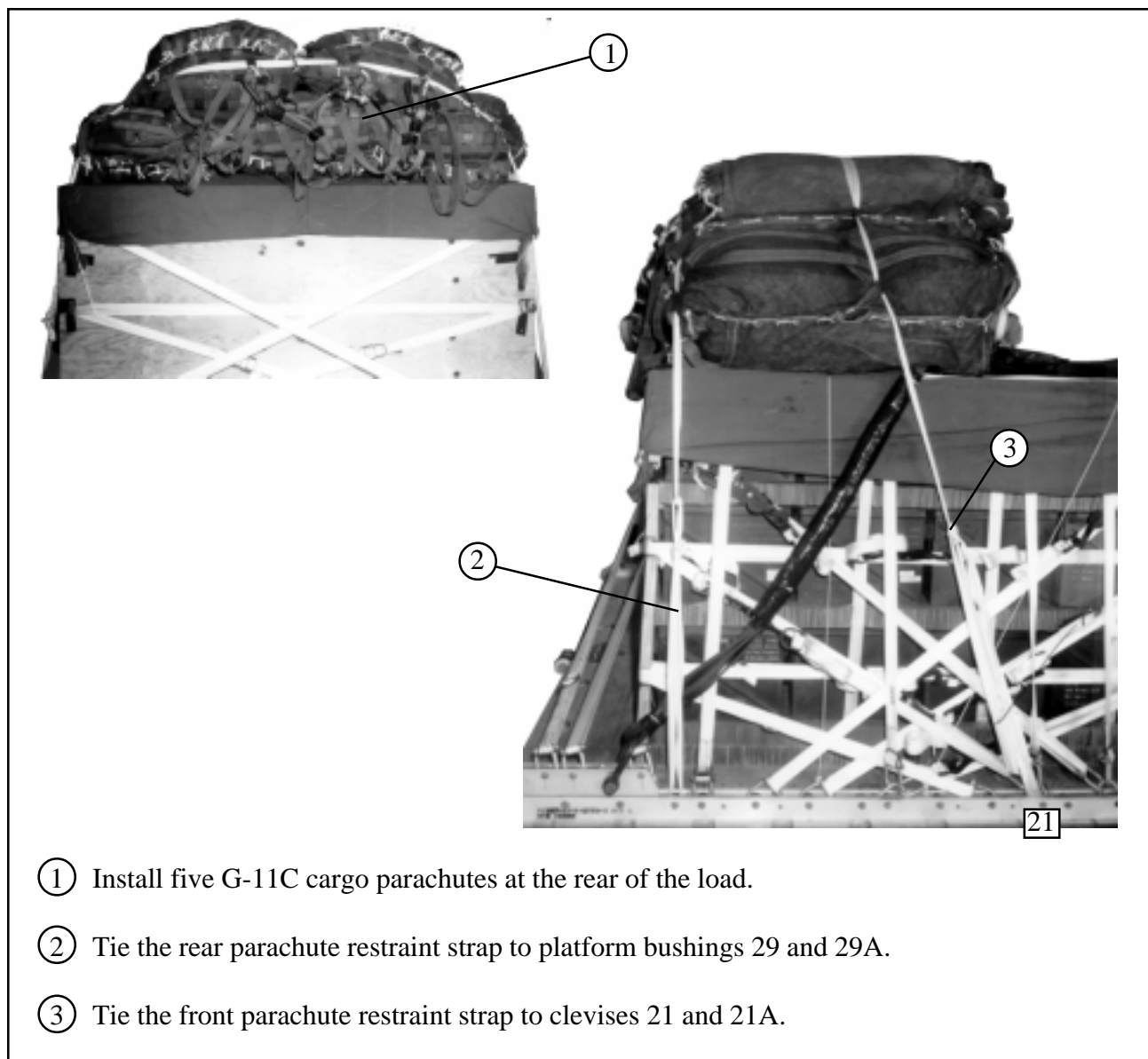


*Figure 15-36. Suspension slings installed and safetied*



### 15-42. Installing Parachutes

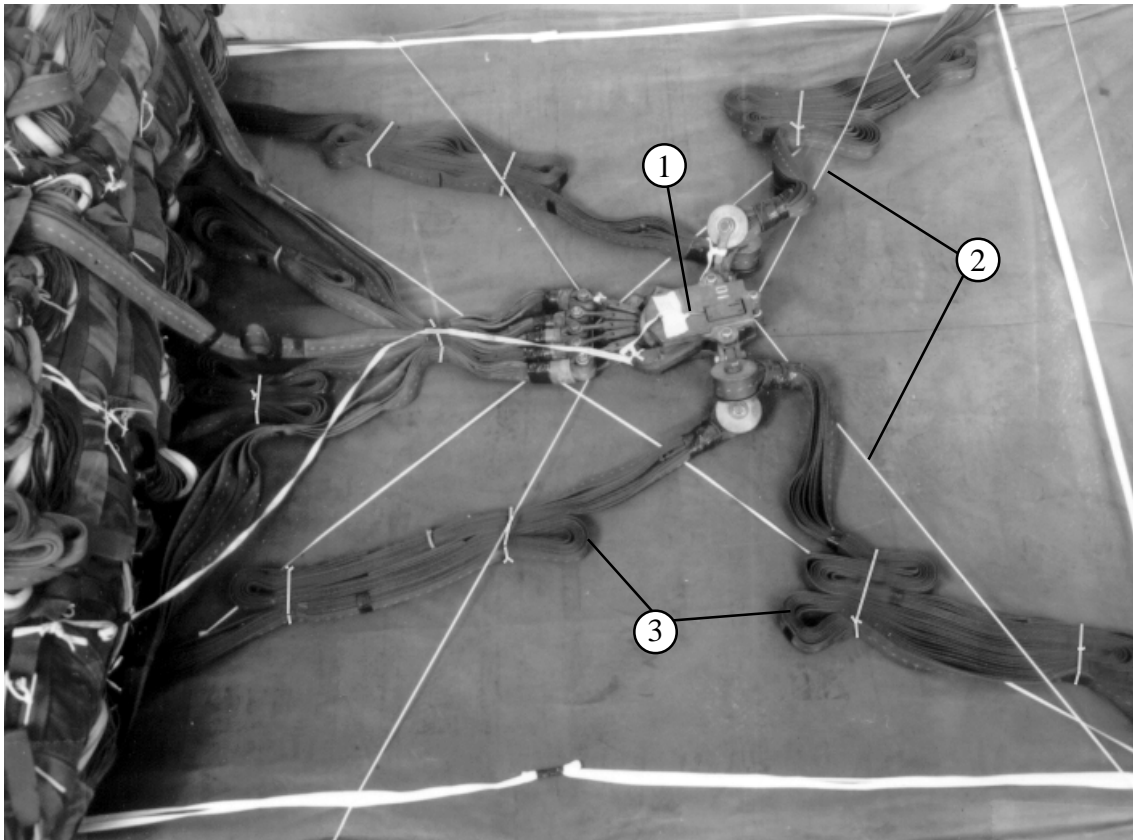
Install and restrain five G-11C cargo parachutes according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 15-37.



*Figure 15-37. G-11 C cargo parachutes installed*

### 15-43. Installing Release System

Install and safety an M-2 cargo parachute release assembly as shown in Figure 15-38.

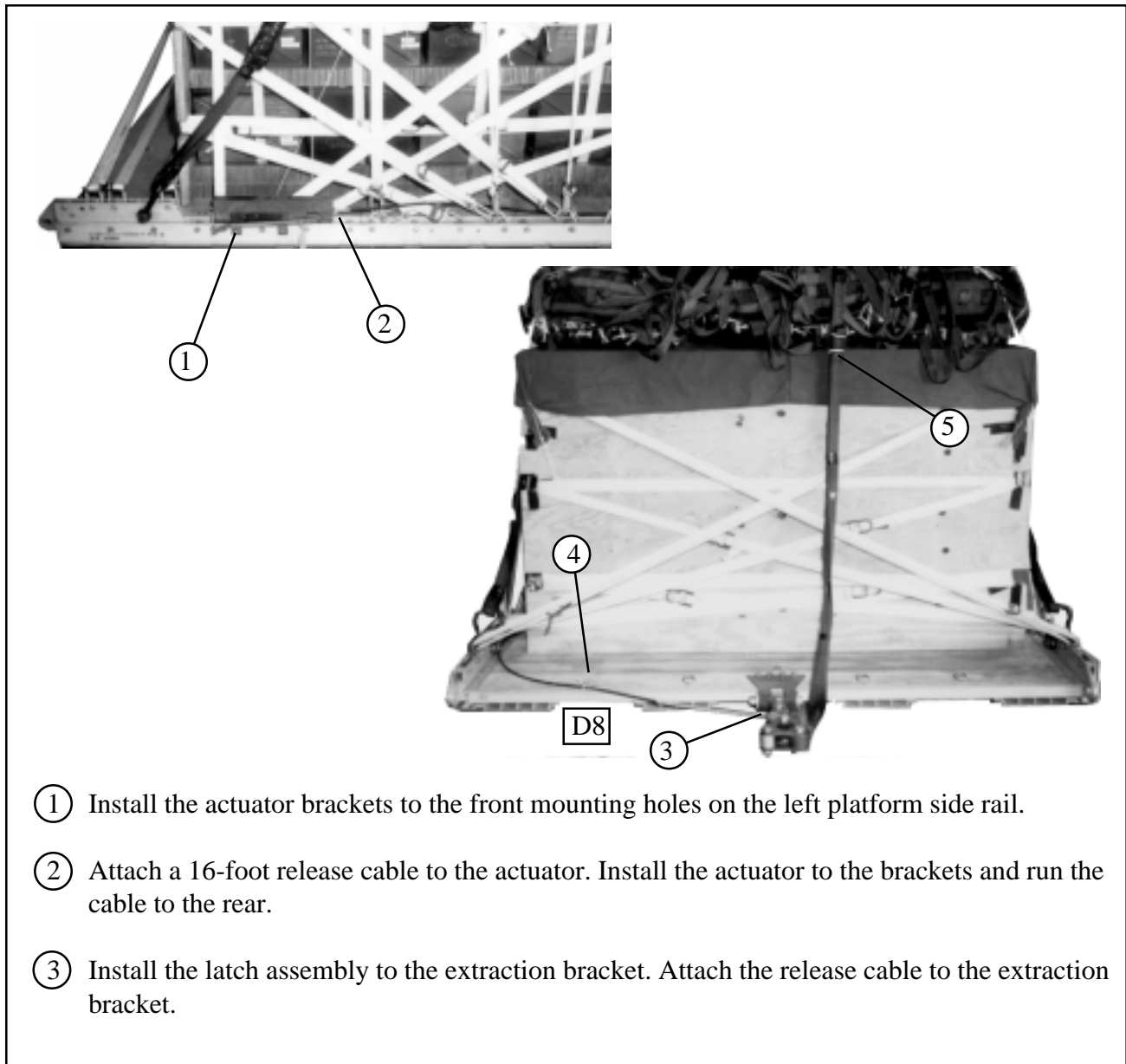


- ① Prepare and install an M-2 cargo parachute release assembly according to FM 10-500-2/TO 13C7-1-5. Place the release assembly in front of the parachutes as shown.
- ② Safety the release to convenient points on the load with type III nylon cord.
- ③ S-fold and tie the slack in the suspension slings with type I, 1/4-inch cotton webbing.

*Figure 15-38. Release assembly installed*

#### 15-44. Installing Extraction System

Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 15-39.



*Figure 15-39. Extraction system installed*

- ④ Tie the cable to tie-down ring D8 with type I, 1/4-inch cotton webbing.
- ⑤ Install a 12-foot (2-loop), type XXVI nylon webbing sling as the deployment line. S-fold the slack and tie the folds with type I, 1/4-inch cotton webbing.

*Figure 15-39. Extraction system installed (continued)*

#### **15-45. Installing Provisions for Emergency Restraints**

Select and install provisions for emergency restraints according to the emergency restraint requirements table in FM 10-500-2/TO 13C7-1-5.

#### **15-46. Placing Extraction Parachute**

Select the extraction parachute and extraction

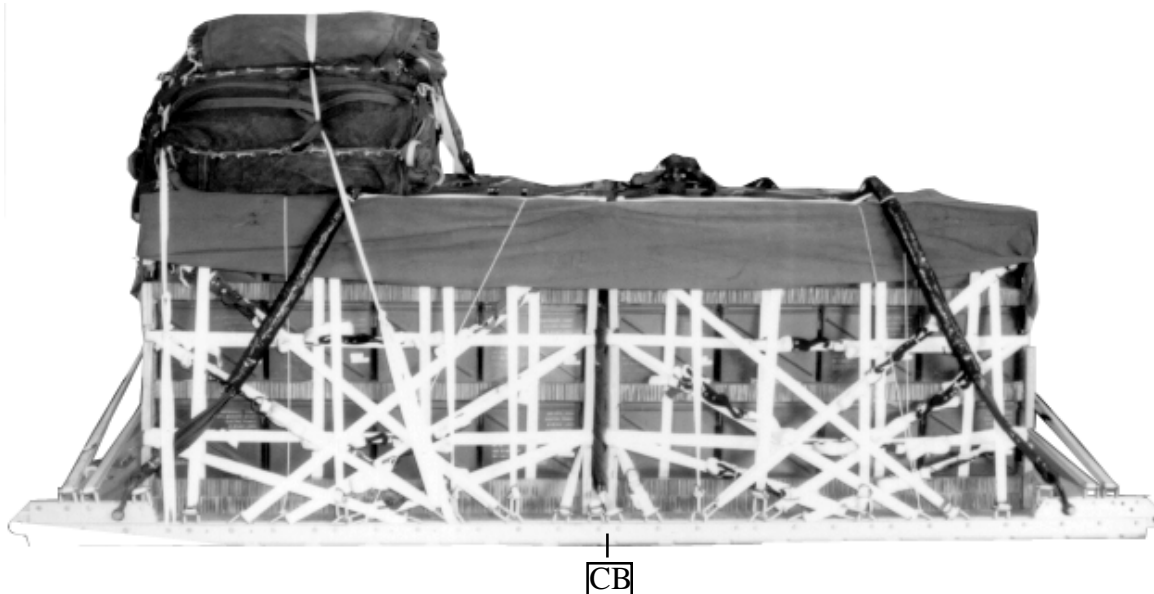
line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation in the aircraft.

#### **15-47. Marking Rigged Load**

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 15-40. Complete Shipper's Declaration for Dangerous Goods and attach it to the load.

**CAUTION**

**Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.**



**Rigged Load Data**

Weight:	26,060 pounds
Height	92 inches
Width	108 inches
Length	192 inches
Overhang: Front	0 inches
Rear	0 inches
CB (from front edge of platform)	91 inches
Extraction System (adds 18 inches to length of platform)	EFTC

*Figure 15-40. 20-millimeter ammunition rigged on a 16-foot platform for low-velocity airdrop*

**15-48. Equipment Required**

Use the equipment listed in Table 15-3 to rig the load shown.

*Table 15-3. Equipment required for rigging 20-millimeter ammunition on a 16-foot type V platform for low-velocity airdrop*

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive paste, 1-gal	As required
4030-00-090-5354	Clevis, suspension, 1-in (large)	7
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5785	Coupling, airdrop, extraction force transfer with cable, 16-ft	1
	Cover:	
1670-00-360-0328	Clevis, large	1
1670-00-360-0329	Link, type IV	21
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	Felt, 1/2-in thick	As required
1670-01-183-2678	Leaf, extraction line (line bag)	2
	Line, drogue (for C-17)	
1670-01-062-6313	60-ft (3-loop), type XXVI	1
	Line, extraction	
1670-01-062-6313	For C-130: 60-ft (3-loop), type XXVI	1
1670-01-107-7651	For C-141: 140-ft (3-loop), type XXVI	1
	For C-5:	
1670-01-107-7651	140-ft (3-loop), type XXVI and	1
1670-01-062-6313	60-ft (3-loop), type XXVI	1
1670-01-107-7651	For C-17: 140-ft (3-loop), type XXVI	1
	Link assembly:	
1670-00-006-2752	Four-point	1
1670-00-783-5988	Type IV	21
	Two-point, 5 1/2-in	
5306-00-435-8994	Bolt, 1-in diam, 4 in long	2
5310-00-232-5165	Nut, 1-in, hexagonal	2
1670-00-003-1954	Plate, side, 5 1/2-in	2
5365-00-007-3414	Spacer, large	2
5315-00-010-4657	Nail, steel wire, common, 6d	As required



*Table 15-3. Equipment required for rigging 20-millimeter ammunition on a 16-foot type V platform for low-velocity airdrop (continued)*

National Stock Number	Item	Quantity
1670-00-753-3928	Pad, energy-dissipating, honeycomb 3- by 36- by 96-in	20 sheets
1670-01-016-7841	Parachute: Cargo, G-11C	5
1670-00-040-8135	Cargo extraction, 28-ft	1
1670-01-063-3715	Droge, 15-ft (for C-17)	1
	Platform, airdrop, type V, 16-foot	
1670-01-353-8425	Bracket assembly, coupling	(1)
1670-01-162-2372	Clevis assembly, type V	(72)
1670-01-353-8424	Extraction bracket assembly	(1)
1670-01-162-2381	Link, tandem, suspension link assembly	(4)
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	10 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo airdrop	
	For suspension:	
1670-01-062-6308	16-ft (4-loop), type XXVI nylon webbing	4
	For deployment:	
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	5
No NSN	60-ft (2-loop), type XXVI nylon webbing	5
5340-00-040-8219	Strap, parachute release, multi-cut, comes w/ 3 knives	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	106
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required
8305-00-263-3591	Type VIII	As required